# 2013 ANNUAL MONITORING NETWORK PLAN FOR THE NORTH CAROLINA DIVISION OF AIR QUALITY

#### **VOLUME 2**

## SITE DESCRIPTIONS BY METROPOLITAN STATISTICAL AREA

#### G. THE WILMINGTON MONITORING REGION



*July 1, 2013* 

North Carolina Division of Air Quality A Division of the North Carolina Department of Environment and Natural Resources Mail Service Center 1641 Raleigh, North Carolina 27699-1641

# 

Figure G1. Th	he Wilmington Monitoring Region	34
Figure G2. Ca	astle Hayne Ozone and Fine Particle Monitoring Site (37-129-0002)	34
Figure G3 Lo	oking North from the Castle Hayne Site	36
Figure G4. Lo	ooking Northwest from the Castle Hayne Site	36
Figure G5. Lo	ooking West from the Castle Hayne Site	36
Figure G6. Lo	ooking Southwest from the Castle Hayne Site	36
Figure G7. Lo	ooking Northeast from the Castle Hayne Site	36
Figure G8. Lo	ooking East from the Castle Hayne Site	36
Figure G9. Lo	ooking Southeast from the Castle Hayne Site	36
Figure G10. l	Looking South from the Castle Hayne Site	36
Figure G11. I	New Hanover Sulfur Dioxide Monitoring Site (37-129-0006)	37
Figure G12.  l	Looking North from the New Hanover Site	37
Figure G13.  l	Looking Northeast from the New Hanover Site	37
Figure G14. L	etter from the EPA approving a waiver for a second ozone monitor for the Wilmington MS	54
	(	38
Figure G15.  l	Looking Northwest from the New Hanover Site	39
Figure G16.  l	Looking West from the New Hanover Site	39
Figure G17.  l	Looking Southwest from the New Hanover Site	39
Figure G18. l	Looking East from the New Hanover Site	39
Figure G19. l	Looking Southeast from the New Hanover Site	39

Figure G20. Looking South from the New Hanover Site	G9
Figure G21. The Battle Ship Urban Air Toxics Monitoring Site	G10
Figure G22. Looking North from the Battleship Site	G10
Figure G23. Looking Northwest from the Battleship Site	G10
Figure G24. Looking Northeast from the Battleship Site	G10
Figure G25. Looking East from the Battleship Site	
Figure G26. Looking West from the Battleship Site	G11
Figure G27. Looking Southwest from the Battleship Site	G11
Figure G28. Looking Southeast from the Battleship Site	G11
Figure G29. Looking South from the Battleship Site	G11
Figure G30. Monitoring Site Location	G13
Figure G31. Kenansville Particle Monitoring Site	G13
Figure G32. Looking North from the Kenansville Site	G14
Figure G33. Looking Northwest from the Kenansville Site	G14
Figure G34. Looking West from the Kenansville Site	
Figure G35. Looking Southwest from the Kenansville Site	
Figure G36. Looking Northeast from the Kenansville Site	
Figure G37. Looking East from the Kenansville Site	G14
Figure G38. Looking Southeast from the Kenansville Site	G14
Figure G39. Looking South from the Kenansville Site	G14
List of Tables	
Table G1. Site Table for Castle Hayne	G5
Table G2. Site Type Appropriate Siting Scales	

#### **G.** The Wilmington Monitoring Region

The Wilmington Monitoring Region, shown in Figure G1, consists of four sections: (1) the Wilmington Metropolitan Statistical Area (MSA) (New Hanover, and Pender Counties), (2) the North Carolina portion of the Myrtle Beach-Conway-North Myrtle Beach MSA (Brunswick County) (3) the Jacksonville MSA (Onslow County), and (4) the Non-MSA Portion of the Wilmington Monitoring Region (Carteret, Columbus, and Duplin Counties).



Figure G1. The Wilmington Monitoring Region
The red dots show the approximate locations of most of the monitoring sites in this region.

#### (1) The Wilmington MSA

As of February 2013, the Wilmington MSA consists of two counties: New Hanover and Pender. The major metropolitan area is the City of Wilmington. The North Carolina Division of Air Quality (NC-DAQ) currently operates two criteria pollutant monitoring sites and one urban air toxics monitoring site in the Wilmington MSA. The criteria pollutant monitoring sites are the New Hanover and Castle Hayne sites. The urban air toxics monitoring site is the Battleship site.



Figure G2. Castle Hayne Ozone and Fine Particle Monitoring Site (37-129-0002)

At the Castle Hayne (37-129-0002) site the NC-DAQ operates an ozone monitor, a one-inthree day fine particle monitor, and a continuous fine particle monitor. Monitoring information for the site is summarized in Table G1. A picture of the site as well as views looking north, northeast, east, southeast, south, southwest, west, and northwest are provided in Figure G2 through Figure G10. The NC-DAQ completed one Beta Attenuation Monitor (BAM) study in December 2011. At that time the BAM was shut down and the 1in-3 day fine particle Federal Reference Method (FRM) monitor became a SLAMS. In October 2012, the NC-DAQ installed another special purpose non-regulatory BAM and began a second BAM study at the site on October 23, 2012.

Table G1. Site Table for Castle Hayne

			Lastie Hayne	3							
Site Name:	Castle						entifi	cation	Number:	37-1	29-0002
<b>Location:</b>	6028 F		olly Shelter Road, Castle Hayne, North Carolina								
MSA:		Wilm	ington, NC				M	SA #:		920	
Latitude		34.36	4167 <b>I</b>	67 <b>Longitude</b> -77.83		838611	Da	atum:		WG	S84
<b>Elevation</b> 12 meters											
						Metho	d		Sample	Sar	npling Schedule
						Refere	nce I	D	Duratio		
Parameter N	lame	Meth							n		
			mental With	Ultra Violet							
Ozone			metry (047)			EQOA-	-0880	)-047	1-Hour		ril 1 to October 31
PM 2.5 Local	l		Model 2025	1							ery Third Day,
Conditions			NS – Gravim			RFPS-(	)498-	118	24-Hour	Yea	r Round
PM 2.5 Local	l		ne BAM-102	0 Mass Moi	nitor						
Conditions			CC (170)			EQPM-	-0308	3-170	1-Hour		ır Round
<b>Date Monito</b>	r Estab	lished:									uary 1, 1979
<b>Date Monito</b>	r Estab	lished:		cal Condition							1, 2002
<b>Date Monito</b>	r Establ	lished:	PM 2.5 Lo	cal Condition	ns (Beta	Attenuat	ion M	<b>Ionitor</b>	)	Oct	ober 23, 2012
Nearest Roa	d: Ho	olly Sh	elter Road	Traffic	Count:	2400		Year	of Count:		2009
			Distance to	Direction							
Parameter N	lame		Road	to Road Mor		nitor Typ	Type Statement of Pur		rpose		
								Real-time AQI reporting. Compliance			
Ozone			60	60 North SL				w/NA			
PM 2.5 Local	l Conditi	ions	60	North	North SLA		AMS A		eporting. Co	ompli	ance w/NAAQS.
PM 2.5 Local	l Conditi	ions					cial Purpose		-		
			60	North			ory   Real-time AQI rep		portin	ıg.	
							Suitable for			Proposal to	
Parameter N	lame		Monitoring (	Objective	Scale	le Comparison to I		on to NAA	QS	Move or Change	
Ozone			Population Ex	opulation Exposure Urba				Yes		None	
PM 2.5 Local	l Conditi	ions	Population Ex	xposure	Neight	orhood	orhood Yes		Yes		None
PM 2.5 Local	l Conditi	ions	Population Ex	xposure		orhood			No		None
			Meets Pa	1			Part 58 Meets Part 58		rt 58		Meets Part 58
			Appendi	ix A	Appen	dix C	App	Appendix D			Appendix E
Parameter N	lame		Require			rements		quirem			Requirements
Ozone				<i>l</i> 'es		es .			Yes		Yes
PM 2.5 Local	l Conditi	ions		<i>l</i> 'es		'es		No re	quirements		Yes
PM 2.5 Lo			<b>Y</b>	<i>l</i> 'es	Y	'es			quirements		Yes
Parameter N	lame		Probe Heigh	t (m)	Distan	ce to Sup	port			ees	Obstacles
Ozone			3.8	. ,		1 meter	_	_	>20 meters		None
PM 2.5 Local	l Conditi	ions	2.3			2 meters			>20 meters		None
PM 2.5 Local			2.3			2 meters			>20 meters		None
- 1.1 <b></b> 5 <b>L</b> 500								_1	0		1.0110



Figure G3 Looking North from the Castle Hayne Site



Figure G4. Looking Northwest from the Castle Hayne Site



Figure G5. Looking West from the Castle Hayne Site



Figure G6. Looking Southwest from the Castle Hayne Site



Figure G7. Looking Northeast from the Castle Hayne Site



Figure G8. Looking East from the Castle Hayne Site



Figure G9. Looking Southeast from the Castle Hayne Site



Figure G10. Looking South from the Castle Hayne Site

The NC-DAQ continues to follow the progress of the Titan cement facility closely. If Titan is constructed, the NC-DAQ will reassess the site after Titan begins operation to ensure the site continues to meet siting criteria for the purposes of the monitors located at the site.

When the Office of Management and Budget redefined the Wilmington MSA in February 2013, the estimated population of the Wilmington MSA dropped below 350,000 to 263, 429. Thus, only one ozone monitor is required for the MSA if the ozone design value is above 85 % of the National Ambient Air Quality Standards. The design value for 2010-2012 for Wilmington is at 83 % of the standard so no monitors are needed in the MSA at this time. However, the NC-DAQ requested and received a waiver for a second ozone monitor for the MSA when its population was above 350,000 from the EPA on November 9, 2011. The waiver is valid until the next 5-year assessment is due in 2015. The waiver is shown in Figure G14.

At the **New Hanover** (37-129-0006) site the NC-DAQ operates a sulfur dioxide monitor. At the beginning of 2012 the shelter was moved approximately 200 feet across the field to maintain access to the site after the host facility closed. A picture of the site as well as views looking north, northeast, east, southeast, south, southwest, west, and northwest are provided in Figure G11 through Figure G20.



Figure G11. New Hanover Sulfur Dioxide Monitoring Site (37-129-0006)



Figure G12. Looking North from the New Hanover Site



Figure G13. Looking Northeast from the New Hanover Site



#### UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

NOV - 9 2011

Ms. Shelia Holman
Director
Division of Air Quality
North Carolina Department of
Environment and Natural Resources
1641 Mail Service Center
Raleigh, North Carolina 27699-1641

Dear Ms. Holman:

In a December 21, 2010, letter to you, the U.S. Environmental Protection Agency approved a waiver of the requirement that the state operate two ozone monitors in the Wilmington Metropolitan Statistical Area (MSA). At that time, EPA stated that it would re-evaluate the appropriateness of the waiver once EPA completed its reconsideration of the Ozone National Ambient Air Quality Standard (NAAQS).

On September 22, 2011, the Agency completed its reconsideration of the Ozone NAAQS and announced that the NAAQS would not change. This action left the Ozone NAAQS, which was promulgated in 2008, at a level of 0.075 parts per million (ppm).

Because the Wilmington MSA has a low risk for exceeding the 0.075 ppm NAAQS due to ambient air ozone concentrations which have been trending lower (i.e., decreasing design value), sea breezes, attainment status, and a population total that is only slightly over the threshold requirement for a second ozone monitor, EPA believes that the waiver of the second monitor is appropriate. The waiver is in effect until the next 5-year network assessment is completed and approved in 2015.

If you have any questions relating to this matter, please contact Katherine Snyder of my staff at (404) 562-9840.

Sincerely,

Gwendolyn Keyes Fleming

Regional Administrator

cc: Archie Lee, SESD

NOV 1 6 2011

AIR QUALITY DIVISION DIRECTORS OFFICE

Internet Address (URL) • http://www.epa.gov

Figure G14. Letter from the EPA approving a waiver for a second ozone monitor for the Wilmington MSA



Figure G15. Looking Northwest from the New Hanover



Figure G16. Looking West from the New Hanover Site



Figure G17. Looking Southwest from the New Hanover



Figure G18. Looking East from the New Hanover Site



Figure G19. Looking Southeast from the New Hanover Site



Figure G20. Looking South from the New Hanover Site

The New Hanover site was established in 1994 to replace the Acme-Delco site in Columbus County, which was shut down in 1995. The Acme-Delco site was located about 15 miles west of the New Hanover site. The site was moved because industrial emissions had decreased in Columbus County and the measured sulfur dioxide concentrations had dropped over the previous 10 years. During the time when both monitors operated, the New Hanover site consistently measured higher concentrations of

sulfur dioxide. On January 1, 2013, the New Hanover site will become the required Population Weighted Emission Inventory (PWEI) site for the Wilmington MSA.



Figure G21. The Battle Ship Urban Air Toxics Monitoring Site

At the Battle Ship (37-129-0010) site the NC-DAQ operates a year round air toxics volatile organic compound sampler. Samples are collected in stainless steel canisters and sent to the Toxics Protection Branch laboratory where they are analyzed for 68 compounds using the Compendium Method for Toxic Organics 15. A picture of the site as well as views looking north, northeast, east, southeast, south, southwest, west, and northwest are provided in Figure G21 through Figure G29.



Figure G22. Looking North from the Battleship Site



Figure G23. Looking Northwest from the Battleship Site



Figure G24. Looking Northeast from the Battleship Site



Figure G25. Looking East from the Battleship Site



Figure G26. Looking West from the Battleship Site



Figure G27. Looking Southwest from the Battleship Site



Figure G28. Looking Southeast from the Battleship Site



Figure G29. Looking South from the Battleship Site

In 2008 EPA expanded the **lead monitoring** network to support the lower lead National Ambient Air Quality Standard (NAAQS) of 0.15 micrograms per cubic meter promulgated in 2008. The 2010 changes to the lead monitoring requirements focuses monitoring efforts on fence line monitoring located at facilities that emit 0.5 tons or more of lead per year and at National Core (NCore) monitoring sites. These changes to the lead monitoring network requirements will not require lead monitoring in the Wilmington MSA. The MSA does not have an NCore monitoring site and it does not have any permitted facilities located within its bounds that emit more than 0.5 tons per year of lead.<sup>1</sup>

Any changes to **ozone monitoring** requirements will not affect the Wilmington MSA because it already has an ozone monitor for urban population exposure monitoring and does not have any Class I Areas.

The Wilmington MSA is not required by the 2010 **nitrogen dioxide monitoring** rule to have nitrogen dioxide monitors. It is too small to require area-wide monitors and does not have any roadways with average annual daily traffic above the threshold for near roadway monitoring. The Wilmington MSA was not required by the 2010 **sulfur dioxide monitoring** rule to add additional sulfur dioxide monitors. The existing sulfur dioxide monitor at the New Hanover site meets the PWEI monitoring requirements for the MSA. This MSA will also not be required to do carbon monoxide monitoring as a result of the

<sup>&</sup>lt;sup>1</sup> Data obtained from the NC-DAQ emission inventory database.

**changes to the carbon dioxide monitoring** requirements because the population is less than one million.

#### (2) The Myrtle Beach-Conway-North Myrtle Beach MSA

The Myrtle Beach-Conway-North Myrtle Beach MSA consists of Brunswick County in North Carolina and Horry County in South Carolina. The principal cities are Myrtle Beach, Conway, and North Myrtle Beach. The NC-DAQ and the South Carolina Department of Health and Environmental Control (SC-DHEC) currently do not operate any monitoring sites in this MSA. The MSA has an estimated population as of July 2012 of 394,542 people, which requires it to have an ozone monitor. The NC-DAQ and SC-DHEC are currently working out who will operate the required ozone monitor and where it will be located. More information about ozone monitoring in this MSA will be included in the 2014 network monitoring plan.

Changes to the **lead monitoring network** requirements in 2010 did not affect this MSA. Changes to the **ozone monitoring requirements** should not affect the Myrtle Beach-Conway-North Myrtle Beach MSA

This MSA is also not impacted by the 2010 **nitrogen dioxide monitoring** requirements. It is too small to require area-wide monitors and does not have any roadways with average annual daily traffic above the threshold for near roadway monitoring. The Myrtle Beach-Conway-North Myrtle Beach MSA is also not impacted by the 2010 **sulfur dioxide monitoring** requirements because there are no large sources of sulfur dioxide in the MSA and the population is not large enough to require a PWEI monitor. This MSA will also not be impacted by the **changes to the carbon dioxide monitoring requirements** because the population is less than one million.

#### (3) The Jacksonville MSA

The Jacksonville MSA consists of Onslow County. The principal city is Jacksonville. The NC-DAQ currently does not operate any monitoring sites in the Jacksonville MSA. The Jacksonville particlemonitoring site was shut down on December 31, 2007, because the measured concentrations were less than 80 % of the National Ambient Air Quality Standards.

Changes to the **lead monitoring network** requirements in 2010 did not affect the Jacksonville MSA. Although the MSA does not have an NCore monitoring site, it had a permitted facility located within its bounds that emitted 0.5 tons or more per year of lead in 2009. However, lead emissions at Camp LeJeune in 2010 were below the 0.5 ton threshold. The EPA concurred that actual emissions from Camp LeJeune were less than 0.5 tons and did not require monitoring at the fence line of the facility. The lead emissions in 2011 are still less than 0.5 tons.

Changes to the **ozone monitoring requirements** could affect the Jacksonville MSA if the EPA decides to require monitoring in urban areas without design values. Its population is above the threshold for requiring population exposure monitoring in urban areas but monitoring is not required because it does not have an ozone design value. Currently, the NC-DAQ does not monitor for ozone in Jacksonville because the ozone levels measured by the Castle Hayne monitor in New Hanover County indicate that the ozone concentrations on the coast are currently around 85 % of the NAAQS. The Jacksonville MSA

would not be affected by rural ozone monitoring requirements because there are no Class I areas in the MSA.

The Jacksonville MSA is not impacted by the 2010 **nitrogen dioxide monitoring** requirements. It is too small to require area-wide monitors and does not have any roadways with average annual daily traffic above the threshold for near roadway monitoring. The Jacksonville MSA is also not impacted by the 2010 **sulfur dioxide monitoring** requirements because there are no large sources of sulfur dioxide in the MSA and the population is not large enough to require a PWEI monitor. This MSA is also not be impacted by the **changes to the carbon dioxide monitoring requirements** because the population is under one million people.

#### (4) The Non-MSA Portion of the Wilmington Monitoring Region

The Non-MSA Portion of the Wilmington Monitoring Region consists of three counties (Carteret, Columbus, and Duplin). This area does not have any MSAs. The NC-DAQ currently operates one monitoring site in this area at Kenansville shown in Figure G30.

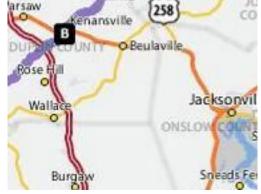


Figure G30. Monitoring Site Location

B is the Kenansville particle site. The neighborhood scale (0.5 to 4 Km) is approximately represented by the black square.

At the **Kenansville** general-background monitoring site in Duplin County the NC-DAQ operates a one-in-three day fine particle FRM monitor, a continuous special purpose non-regulatory fine particle beta attenuation monitor (BAM), and a rotating one-in-six day high volume PM<sub>10</sub> monitor that operates every third year. At the end of 2013, the NC-DAQ may shut down the FRM monitor and replace it with the BAM, if the BAM and FRM values agree well. Currently, the values do not agree well enough to replace the FRM with the BAM. If the BAM and FRM continue to not agree, the NC-DAQ will shut down the BAM at the end of 2013. A picture of the site as well as views looking north, northeast, east, southeast, south, southwest, west, and northwest are provided in Figure G31 through Figure G39.



Figure G31. Kenansville Particle Monitoring Site



Figure G32. Looking North from the Kenansville Site



Figure G33. Looking Northwest from the Kenansville Site



Figure G34. Looking West from the Kenansville Site



Figure G35. Looking Southwest from the Kenansville Site



Figure G36. Looking Northeast from the Kenansville Site



Figure G37. Looking East from the Kenansville Site



Figure G38. Looking Southeast from the Kenansville Site



Figure G39. Looking South from the Kenansville Site

The NC-DAQ requires  $PM_{10}$  data in the coastal area for prevention of significant deterioration (PSD) modeling for industrial expansion. Because the NC-DAQ shut down the  $PM_{10}$  monitoring site in Jacksonville on December 31, 2007, the NC-DAQ began manual one-in-six day  $PM_{10}$  monitoring at the Castle Hayne site in February 2008 to provide the necessary  $PM_{10}$  data for PSD modeling for the coastal area. However, a wildfire next to the site forced the NC-DAQ to shut down the monitor on March 31, 2008. After the wildfire was extinguished, the NC-DAQ decided not to resume  $PM_{10}$  monitoring at Castle Hayne because of the pending construction of the Titan Cement Facility across the street from the Castle Hayne site. Modeling results indicate that Titan could contribute over 10 % of the NAAQS to the  $PM_{10}$  concentrations measured at Castle Hayne, making Castle Hayne an unsuitable site for obtaining data to use for PSD modeling. As a result the  $PM_{10}$  monitor was located at Kenansville in second quarter 2009. At the end of 2010, the NC-DAQ began operating the monitor on a one-in-three year schedule and made the site one of six rotating background  $PM_{10}$  sites for the state.

The 2010 lead monitoring requirements did not result in lead monitoring in this area because there are no NCore monitoring stations or permitted facilities that emit 0.5 tons or more of lead per year. Any new ozone monitoring requirements will also not affect this area. There is no MSA here so population exposure monitoring requirements for urban areas do not apply and rural ozone monitoring requirements will not apply because there are no Class I areas. The 2010 nitrogen dioxide monitoring requirements also will not add monitors to this area. It is too small to require area-wide monitors and does not have roadways with average annual daily traffic above the threshold for near road monitoring. This area will also not need to add monitors to meet the 2010 sulfur dioxide monitoring requirements because there are no large sources of sulfur dioxide in this area and the population is too small to require a PWEI monitor. The changes to the carbon dioxide monitoring requirements will not impact this area because the population is under one million.

<sup>2</sup> ibid.

### **Appendix G.1 Annual Network Site Review Forms for 2012**

Castle Hayne

New Hanover in Wilmington

Battle Ship in Wilmington

Kenansville

#### Site Information

Region WIRO Site Name Castle Hayne				AQS Site # 37-129-0002			
Street Address-Holly S	helter Road	Ni O-		City Castle Havne			
Urban Area Not in a	m Urban Area	Core-base	ed Stat	istical Area W	ilmington, N	C	
	Enter Exact		- 22				
Longitude -77.8388		ude <u>34.3643</u>	4722		thod of Mea		
In Decimal Degrees		imal Degrees	- 8	Other (explain)	Explanatio	n: Google Earth	
Elevation Above/below I					12		
Name of nearest road to inle	et probe Holly Sh	helter Road ADT	2400 Y	ear 2011			
Comments:							
Distance of site to nearest n		<u> </u>			1 <u>N</u>		
Name of nearest major road	1	ADT	_	Year			
Comments:		<u></u>					
Site located near electrical:	substation/high vo	oltage power lines?	U.		l'a	Yes No 🛛	
Distance of site to neares	t railroad track	500-500	(m)	Direct	ion to RR	⊠n'a	
			1000				
Distance of site to neares  Distance between site and of						⊠na	
Explain any sources of p							
construction activities, fa					ordens, rems,	Tuniona tracks,	
		59					
-							
						-	
ANSWER ALL APPLIC					ar.		
Parameters	Monitori	ng Objective		Scale	-	Site Type	
□ <u>N</u> A	General/Bac	ekground	$\square_{N}$	fiero	<b>⊠</b> SLAMS	S Ozone	
SO <sub>2</sub> (NAAQS)	Highest Con	ekground	100	25/202	Transfer to the second	S <u>Ozone</u>	
SO <sub>2</sub> (NAAQS) SO <sub>2</sub> (trace-level)	Highest Con	ncentration		liddle	□NCORI	<u> </u>	
SO <sub>2</sub> (NAAQS)	☐ Highest Con ☐ Max O3 Con ☑ Population I	ncentration ncentration Exposure		liddleeighborhood	□NCORI	<u> </u>	
□ SO <sub>2</sub> (NAAQS) □ SO <sub>2</sub> (trace-level) □ NO <sub>4</sub> (NAAQS) □ HSNO <sub>9</sub> □ O <sub>3</sub>	Highest Con Max O3 Con Population I Source Orien	ncentration ncentration Exposure nted		liddle eighborhood rban	□NCORI □SPM_ □SPM/O	PN	
□ SO₂(NAAQS) □ SO₂(trace-level) □ NO₂ (NAAQS) □ HSNO₂ □ O₃ □ NH₃	☐ Highest Con ☐ Max O3 Con ☑ Population I	ncentration ncentration Exposure nted		liddleeighborhood	□NCORI □SPM_ □SPM/O	<u> </u>	
☐ SO₂ (NAAQS) ☐ SO₂ (trace-level) ☐ NO₂ (NAAQS) ☐ HSNO₂ ☐ O₃ ☐ NH₃ ☐ Hydrocarbon	☐ Highest Con ☐ Max ○3 Cor ☐ Population I ☐ Source Ories ☐ Transport	ncentration ncentration Exposure nted ckground		liddle eighborhood rban	□NCORI □SPM_ □SPM/O	PN	
□ SO <sub>2</sub> (NAAQS) □ SO <sub>2</sub> (trace-level) □ NO <sub>4</sub> (NAAQS) □ HSNO <sub>9</sub> □ O <sub>3</sub> □ NH <sub>3</sub>	Highest Con Max O3 Cor Population I Source Oriet Transport Upwind Bac	ncentration ncentration Exposure nted ckground		liddle eighborhood rban	□NCORI □SPM_ □SPM/O	PN	
☐ SO₂ (NAAQS) ☐ SO₂ (trace-level) ☐ NO₂ (NAAQS) ☐ HSNO₂ ☐ O₃ ☐ NH₃ ☐ Hydrocarbon ☐ Air Toxics ☐ HSCO (Not Micro) ☐ CO (trace-level)	Highest Con Max O3 Cot Population I Source Ories Transport Upwind Bac Welfare Rel	ncentration ncentration Exposure nted ckground lated Impacts		fiddle eighberhood rban egional	□NCORI □SPM□ □SPM/O □NONRI	E PN BGULATORY	
□ SO₂ (NAAQS) □ SO₂ (trace-level) □ NO₂ (NAAQS) □ HSNO₂ □ O₃ □ NH₃ □ Hydrocarbon □ Air Toxics □ HSCO (Nat Micro) □ CO (trace-level)  Probe inlet height (from go	Highest Con Max O3 Con Population I Source Ories Transport Upwind Bac Welfare Rel	ncentration	□M □N ⊠U □R	iddle eighberhood rban egional	□NCORI □SPM□ □SPM/O □NONRI	PN BGULATORY ound (meters) 3.8	
SO₂ (NAAQS)  SO₂ (trace-level)  NO₂ (NAAQS)  HSNO₂  SO₃  NH₃  Hydrocarbon  Air Toxics  HSCO (Nat Micro)  CO (trace-level)  Probe inlet height (from gn	Highest Con Max O3 Con Population I Source Ories Transport Upwind Bac Welfare Rel wound) 2-15 m?	ncentration Exposure nted ekground ated Impacts  Yes  No  orizontal (wall) and	□M □N ⊠U □R	iddle eighborhood rban egional re actual measured	□NCORI □SPM□ □SPM/O □NONRI	PN BGULATORY ound (meters) 3.8	
□ SO₂ (NAAQS) □ SO₂ (trace-level) □ NO₂ (NAAQS) □ HSNO₂ □ O₃ □ NH₃ □ Hydrocarbon □ Air Toxics □ HSCO (Not Micro) □ CO (trace-level)  Probe inlet height (from gnother and the stance of pactual measured distance of the solution of the stance of the solution of the soluti	Highest Con Max O3 Cor Population I Source Oriet Transport Upwind Bac Welfare Rel wound) 2-15 m?	ncentration Exposure nted ekground lated Impacts  Yes  No  orizontal (wall) and f probe to supporting	Gin Gin g struct	riddle righborhood righter continued a continued contin	□NCORI □SPM□ □SPM/O □NONRI □NONRI	E PN  BGULATORY  ound (meters) 3.8 1 m? Yes \( \times \) No \( \times \)	
□ SO₂ (NAAQS) □ SO₂ (trace-level) □ NO₂ (NAAQS) □ HSNO₂ □ O₃ □ NH₃ □ Hydrocarbon □ Air Toxics □ HSCO (Not Micro) □ CO (trace-level)  Probe inlet height (from gnot probe in the probe of pactual measured distance of Distance of outer edge of pactual measured distance distance d	Highest Con Max O3 Cor Population I Source Oriet Transport Upwind Bac Welfare Rel Ound) 2-15 m?	recentration Exposure inted ekground lated Impacts  Yes  No  orizontal (wall) and f probe to supporting their monitoring pro-	Gir	riddle righborhood rban egional re actual measured ical (roof) supportiure (meters) 1.0 s > 1 m?	□NCORI □SPM□ □SPM/O□NONRI □NONRI height from gn ng structure > 1	PN BGULATORY ound (meters) 3.8	
SO₂ (NAAQS) SO₂ (trace-level) NO₂ (NAAQS) HSNO₂ SO₃ NH₃ Hydrocarbon Air Toxics HSCO (Not Micro) CO (trace-level) Probe inlet height (from gr Distance of outer edge of p Actual measured distance f Distance of outer edge of p	Highest Con Max O3 Cor Population I Source Ories Transport Upwind Bac Welfare Rel welfare Rel ound) 2-15 m?	recentration	Gin  Gin  Gin  Gin  Gin  Gin  Gin  Gin	iddle_eighborhoodrban_egionaleegionaleegionaleegionaleegionaleegional_eegion	NCORI   SPM   SPM/O   SPM/O   NONRI	E PN  BGULATORY  ound (meters) 3.8 1 m? Yes \( \times \) No \( \times \)	
SO₂ (NAAQS) SO₂ (trace-level) NO₂ (NAAQS) HSNO₂ SO₃ NH₃ Hydrocarbon Air Toxics HSCO (Nat Micro) CO (trace-level) Probe inlet height (from grobitance of outer edge of pactual measured distance for the probe > 20 m from the new the probe > 10 m from the new the	Highest Con Max O3 Cor Population I Source Ories Transport Upwind Bac Welfare Rel ound) 2-15 m? Transport From outer edge of probe inlet from be from outer edge of probe inlet from other	recentration	Gin  Gin  Gin  Gin  Gin  Gin  Gin  Gin	iddleeighborhoodrbanegional  re actual measured ical (roof) supportiure (meters) 1.0 s > 1 m?   nswer *'d question ction? Yes []	height from gn structure > 1  Yes 2	E PN  BGULATORY  ound (meters) 3.8  1 m? Yes  No  \[ \]	
SO₂ (NAAQS) SO₂ (trace-level) NO₂ (NAAQS) HSNO₂ SO₃ NH₃ Hydrocarbon Air Toxics HSCO (Not Micro) CO (trace-level) Probe inlet height (from gr Distance of outer edge of p Actual measured distance f Distance of outer edge of p Is probe > 20 m from the *Is probe > 10 m from the	Highest Con Max O3 Cor Population I Source Ories Transport Upwind Bac Welfare Rel ound) 2-15 m? Transport From outer edge of probe inlet from be from outer edge of probe inlet from other	recentration	Gin  Gin  Gin  Gin  Gin  Gin  Gin  Gin	iddle_eighborhoodrban_egionaleegionaleegionaleegionaleegionaleegional_eegion	height from gn structure > 1  Yes 2	E PN  BGULATORY  ound (meters) 3.8  1 m? Yes  No  \[ \]	
SO₂ (NAAQS)  SO₂ (trace-level)  NO₂ (NAAQS)  HSNO₂  SO₃  NH₃  Hydrocarbon  Air Toxics  HSCO (Not Micro)  CO (trace-level)  Probe inlet height (from gr Distance of outer edge of p Actual measured distance of Distance of outer edge of p Is probe > 20 m from the  *Is probe > 10 m from the  *Distance from probe to tre  *Height of tree (m)	Highest Con Max O3 Cor Population I Source Ories Transport Upwind Bac Welfare Rel Welfare Rel ound) 2-15 m? Transport Upwind Bac upw	recentration	Gird Gird Gird Gird Gird Gird Gird Gird	riddle	height from gn structure > 1  Yes 2	E PN  BGULATORY  ound (meters) 3.8  1 m? Yes  No  \[ \]	
SO₂ (NAAQS) SO₂ (trace-level) NO₂ (NAAQS) HSNO₂ SO₃ NH₃ Hydrocarbon Air Toxics HSCO (Not Micro) CO (trace-level) Probe inlet height (from gn Distance of outer edge of p Actual measured distance of Distance of outer edge of p Is probe > 20 m from the n*Is probe > 10 m from the s*Distance from probe to tre*Height of tree (m) Are there any obstacles to a	Highest Con Max O3 Cor Population I Source Ories Transport Upwind Bac Welfare Rel Welfare Rel ound) 2-15 m? Transport Upwind Bac Upw	recentration	Gin	iddle_eighborhood_rban_egionaleegionaleegionaleegionaleegionaleegional_	height from grang structure > 1  Yes 2  18)	PN  EGULATORY  ound (meters) 3.8  1 m? Yes \( \times \) No \( \times \)	
SO₂ (NAAQS) SO₂ (trace-level) NO₂ (NAAQS) HSNO₂ SO₃ NH₃ Hydrocarbon Air Toxics HSCO (Not Micro) CO (trace-level) Probe inlet height (from gr Distance of outer edge of p Actual measured distance of Distance of outer edge of p Is probe > 20 m from the *Distance from probe to tre *Height of tree (m)	Highest Con Max O3 Cor Population I Source Ories Transport Upwind Bac Welfare Rel  ound) 2-15 m?  robe inlet from he from outer edge of probe inlet from ot earest tree drip lie ec (m)  air flow? *Yes  instance from prob	recentration	Gin Gin obstructions) No	reactual measured ical (roof) support ure (meters) 1.0 s > 1 m?  Direction from probe inlet on from probe inlet.	height from gn ng structure > 1  Yes  15)  *No  probe to tree	E PN  BGULATORY  ound (meters) 3.8  1 m? Yes  No  \[ \]  No \[ \] NA \[ \]	

Parameters	Monitoring Objective	Scale	Site Type
⊠NA □CO (Micro Only)	Highest Concentration Population Exposure Source Oriented Transport Welfare Related Impacts		□SLAMS □SPM □SPM/OPN □ NONRBGULATORY
Probe inlet height (from gr Actual measured distance	round) 2.5 - 3.5 m? from probe inlet to ground (meters) _	_	Yes 🗌 No 🗍
	probe inlet from horizontal (wall) and/ from outer edge of probe to supporting		ting structure > 1 m? Yes No
Distance of probe inlet to	nearest intersection > 10 m? nearest traffic lane 2 to 10 m? nearest tree drip line? Yes *No	(answer *'d anestic	Yes No Yes No No
*Is probe > 10 m from the *Distance from probe to tr *Height of tree (m)	nearest tree drip line if tree acts as an ec (m)air flow? *Yes (answer *'d questions are flow? The flow is a flow? The flow is a flow in the flow in the flow is a flow in the flow in the flow is a flow in the flow in	obstruction? Yes  Direction from	*No 🗆
*Is distance from inlet pro	Distance from probe inlet (m)	that the obstacle protruc	des above the probe? Yes 🔲 No 🔲
Parameters	Monitoring Objective	Scale	Site Type
⊠NA □NOy(trace-level)	General/Background Highest Concentration Max O3 Concentration Population Exposure Source Oriented Transport Upwind Background Welfare Related Impacts	Micro Middle Neighborhood Urban Regional	NCORE
Probe inlet height (from gr Actual measured distance	round) 10-15 m? from probe inlet to ground (meters) _		Yes No
	probe inlet from horizontal and/or vert from outer edge of probe inlet to supp		
Distance of outer edge of a	probe inlet from other monitoring prob	e inlets > 1 m?	Yes □ No □ NA □
*Is probe > 10 m from the	nearest tree drip line? Yes *No nearest tree drip line if tree acts as an ee (m)	obstruction? Yes	1850\$CV
Are there any obstacles to *Identify obstacle I *Is distance from inlet pro	air flow? "Yes [ (answer *'d questic Distance from probe inlet (m)	Direction from probe inle that the obstacle protrus	des above the probe? Yes 🔲 No 🔲

Parameters	Monitoring Objective	Scale	Site Type
NA  NO₂ (Near Road only)  CO (Near Road only)	Highest Concentration  Population Exposure  Source Oriented  Transport  Welfare Related Impacts	Micro	SLAMS SPM NONREGULATORY
	und) 2-7 m? Yes 🗌 No 🗌		height from ground (meters)
			ng structure > 1 m? Yes 🗌 No 🗌
	om outer edge of probe inlet to supp		
	obe inlet from other monitoring pro	AND THE PERSON NAMED IN COLUMN TWO IS NOT THE PERSON NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO I	Yes No NA
	arest tree drip line? Yes 🗌 *N		
*Distance from probe to tre *Height of tree (m)	earest tree drip line if tree acts as an e (m)	Direction from	
Are there any obstacles to a	ir flow? *Yes [] (answer *'d questi	ions) No 🔝	
	stance from probe inlet (m)D		
	e to obstacle at least twice the height traffic lane (m) Direction		es above the probe? Yes No 🔲
Distance of proof to floarest	dutile late (iii) Ducceou	i ironi proce to neaces uni	iiic faile
Parameters	Monitoring Objective	Scale	Site Type
Air flow > 200 L/min   [ PM10   TSP   TSP Db	Highest Concentration Population Exposure Source Oriented Background Transport Welfare Related Impacts	Micro Middle Neighborhood Urban Regional	리스   국일 - 기다스 14년~18
	nund) $\square \le 2 \text{ m}$ $\square = 2-7 \text{m}$ com probe inlet to ground (meters)		>15 m
	obe inlet from horizontal (wall) and om probe to supporting structure (m		oof) supporting structure > 2 m? Yes  No
Entire inlet opening of colle	ocated PM-10, TSP or TSP Pb Samp	olers (X) within 2 to 4 m of	f each other? Yes 🗌 No 🗌 NA 🗌
Actual measured distance (	K) including entire inlet openings of	both (all) collocated prob	e inlets (meters)
Distance (Y) between outer	edge of any high volume inlet and a	any other high or low volu	me inlet≥2 m? Yes No NA
Is probe > 20 m from the ne	arest tree drip line? Yes 🗌 *N	lo [ (answer *'d question	18)
*Distance from probe to tre *Height of tree (m)	3000	Direction from	*No probe to tree
Are there any obstacles to a	ir flow? *Yes 🗌 (answer *'d questi	ions) No 🗌	200 42
	stance from probe inlet (m)Di		
			es above the probe? Yes 🔲 No 🔲
Distance of probe to nearest	trattic lane (m) Direction	from probe to nearest traff	nc lane

Revised 2013-04-26

Parameters	Monitoring Objective	Scale	Site Type
□NA	Committee down and	□\visas	SLAMS PM-2.5
Air flow ≤ 200 L/min  ☑ PM2.5	General/Background	Micro	FRM
□ PM10	Highest Concentration	Middle	☐ NCORE
☐PM10-2.5	Population Exposure	Neighborhood	□SPM
PM10 Lead (PB)	Source Oriented	Urban	NONREGULATORY
PM2.5 Cont. (TEOM)	Transport	Regional	BAM
	Upwind Background	10cm (680 Ni - 75	
PM2.5 Spec. (URG)	Welfare Related Impacts	ь	SUPPLEMENTAL
☐ PM2.5 Cont. Spec.	A50	0 2000	SPECIATION
Probe inlet height (from gro Actual measured distance fr	und)	2.3 7-15 m	= > 15 m
	obe inlet from horizontal (wall) and/o om outer edge of probe inlet to suppor		ipporting structure > 2 m? Yes ⊠ No □
Distance (Y) between outer	edge of probe inlets of any low volum		Yes ⊠ No □ NA □
volume monitor at the site -			ICS MO MO MA
Distance (Y) between outer or TSP inlet = 2 m or greate	edge of all low volume monitor inlets	and any Hi-Volume PM-10	Yes □ No □ NA ☒
	tors (Two FRMs, FRM & BAM, FRN	1&	
TEOM, BAM & TEOM) Lo	cated at Site?	Tes [☐ (answer	r *'d questions) No 🗌 NA 🗌
	located PM 2.5 samplers (X) within 2		
each other?	pler inlets within 1 m vertically of eac		Give actual (meters) 3.3 Give actual (meters) 02
	llocated with a SASS monitor at the si		
* Entire inlet opening of col	located speciation samplers inlets (X)		
Give actual (meters)		CL. al V 🗆 N	Give actual (meters)
	sampler inlets within 1 m vertically of itor collocated with a PM2.5 monitor	et the cite	· · · · · · · · · · · · · · · · · · ·
to measure PM10-2.5?		~Yes ∐ (answ	er *'d questions) No 🛭 NA 🗌
	located PM10 and PM2.5samplers for	r PM10-2.5 (X) within 2	fes 🗌 No 🗌
to 4 m of each other?  *Are collocated PM10 and 1	PM2.5 sampler inlets within 1 m vertice	AUXVI IAI NOO TIGENO II E	Yes □ No □
	arest tree drip line? Yes X *No		100
	carest tree drip line if tree acts as an o		1
*Distance from probe to tree	c (m)	Direction from prob	c to tree
*Height of tree (m)	The second secon		
	ır flow? *Yes 🗌 (answer *'d questior		
	stance from probe inlet (m)Di		
	e to obstacle at least twice the height to traffic lane (m) 60 Direction from		
The restrict control of the street of the street		proof to interest manual same 2	<del>-</del>
RECOMMENDATIONS:		Control of the Contro	
	atus? Yes ⊠ *No □ (answer ***)		
	ojective? Yes [] (enter new objective		
	sentativeness? Yes [] (enter new s	scale	) No 🗆
*4) Relocate site? Yes	□ No□		
Comments:			
Date of Last Site Pictures	12/19/12 New Pictur	res Submitted? Yes 🛛 No [	
ReviewerTony Sabet	ti	Da	teDecember 27, 2012
Ambient Monitoring Coor	dinator Tony Sabetti		Date12/27/12

Castle Hayne 2012 Site Review. Docx

### Site Information

Region WIRO Site Name New Hanover				AQS Site # 37-129-0006		
Street Address-2400	Hwy 421	North		City Wilmington		
Urban Area WIL	MINGTO	N Core-ba	sed St	atistical Area W	ilmington, NC	
	Enter I	Exact				
Longitude <u>77.95635000</u> Latitude <u>34.26</u>			6000	Met	thod of Measuring	
In Decimal Degrees		In Decimal Degrees	2151001000	Other (explain)	Explanation: Google Earth	
Elevation Above/belo	w Mean S	ea Level (in meters)	100		2	
Comments:  Distance of site to neare Name of nearest major is Comments:	st major roa road <u>USH</u> y	US Hwy 421  d (m) 51 Direction from wv 421 AD	site to n		<u>v</u>	
Site located near electric	cat substatte	n/high voltage power lines	5?		Yes ☐ No 🗵	
	rest power	pole w/transformer	(m)		**************************************	
		of water tower (m)			r tower NA stacks, vents, railroad tracks,	
ANSWER ALL APP	210000000000000000000000000000000000000	restaurants, and swimm  QUESTIONS:	ing poo	Is.		
Parameters		Ionitoring Objective		Scale	Site Type	
NA  SO₂ (NAAQS)  SO₂ (NAAQS)  NO₃ (NAAQS)  HSNO₃  O₃  NH₃  Hydrocarbon  Air Toxics  HSCO (Not Micr	High   Ma   Ma   Poj   Soi   Tra   Up   We	neral/Background  ghest Concentration  x O3 Concentration  pulation Exposure  arce Oriented  ansport  wind Background  elfare Related Impacts		Micro Middle Neighborhood Urban Regional	SLAMS  □NCORE □SPM □SPM/OPN □NONREGULATORY	
Probe inlet height (from ground) 2-15 m? Yes \( \subseteq \text{No} \) Give actual measured height from ground (meters) \( \frac{4}{2} \)  Distance of outer edge of probe inlet from horizontal (wall) and/or vertical (roof) supporting structure > 1 m? Yes \( \subseteq \text{No} \)  Actual measured distance from outer edge of probe to supporting structure (meters) \( \frac{1.2}{2} \)  Distance of outer edge of probe inlet from other monitoring probe inlets > 1 m? Yes \( \subseteq \text{No} \) No \( \subseteq \text{NA} \)  Is probe > 20 m from the nearest tree drip line? Yes \( \subseteq \text{*No} \subseteq \text{(answer **d questions)} \)  *Is probe > 10 m from the nearest tree drip line if tree acts as an obstruction? Yes \( \subseteq \text{*No} \subseteq \text{*No} \subseteq \)						
*Distance from probe to *Height of tree (m)	o tree (m)			_ Direction from	probe to tree	
*Identify obstacle	_ Distance for obs	*Yes (answer *'d que from probe inlet (m) tacle at least twice the hei lane (m) 51 Direction f	_Direct ght that	ion from probe inlet the obstacle protrude	s above the probe? Yes 🔲 No 🗌	

Parameters	Monitoring Objective	Scale	Site Type
□ NA □CO (Micro Only)	Highest Concentration Population Exposure Source Oriented Transport Welfare Related Impacts	□Micro	SLAMS SPM SPM/OPN NONREGULATORY
Probe inlet height (from gr Actual measured distance f	ound) 2.5 = 3.5 m? from probe inlet to ground (meters) _	_	Yes No No
	robe inlet from horizontal (wall) and/ from outer edge of prohe to supporting		ting structure > 1 m? Yes ☐ No ☐
Distance of probe inlet to n	nearest intersection > 10 m? nearest traffic lane 2 to 10 m? carest tree drip line? Yes *No		Yes No Yes No
*Is probe > 10 m from the *Distance from probe to the *Height of tree (m) Are there any obstacles to a *Identify obstacleE	nearest tree drip line if tree acts as an ee (m)air flow? *Yes (answer *'d question in the control of the control	obstruction? Yes	*No n probe to tree et to obstacle
	be to obstacle at least twice the height st traffic lane (m)Direction fr		
Parameters	Monitoring Objective	Scale	Site Type
□NA □NO <sub>y</sub> (trace-level)	General/Background Highest Concentration Max O3 Concentration Population Exposure Source Oriented Transport Upwind Background Welfare Related Impacts	Micro	NCORE
Probe inlet height (from gr	ound) 10-15 m?		Yes 🗌 No 🗌
Actual measured distance f	from probe inlet to ground (meters)		
이 사람이 아이들의 아이는 아이지 않아 다시다.	robe inlet from horizontal and/or vert from outer edge of probe inlet to supp		
Distance of outer edge of p	robe inlet from other monitoring prob	oe inlets > 1 m?	Yes□ No□NA□
*Is probe > 10 m from the	earest tree drip line? Yes : *No nearest tree drip line if tree acts as an ee (m)	obstruction? Yes	25/8X
Are there any obstacles to a *Identify obstacle D *Ts distance from inlet prof	air flow? *Yes [ (answer *'d question)  Distance from probe inlet (m) [ ]  Die to obstacle at least twice the height at traffic lane (m) [ ]	Direction from probe inle that the obstacle protruc	les above the probe? Yes 🔲 No 🛭

Parameters	Monitoring Objective	Scale	Site Type
□ NA □NO₂ (Near Road only) □CO (Near Road only)	Highest Concentration  Population Exposure  Source Oriented  Transport  Welfare Related Impacts	Micro	SLAMS SPMNONREGULATORY
	und) 2-7 m? Yes No No obe inlet from horizontal (wall) and		height from ground (meters) ng structure > 1 m? Yes No
Actual measured distance fr	om outer edge of probe inlet to supp	porting structure (meters)	
Distance of outer edge of pr	obe inlet from other monitoring pro	be inlets > 1 m?	Yes No NA NA
Is probe > 20 m from the ne	arest tree drip line? Yes 🗌 *N	To [ (answer *'d question	is)
*Distance from probe to tree *Height of tree (m)	e (m)ire flow? *Yes (answer *'d questi	Direction from	
	stance from probe inlet (m)Di		
	traffic lane (m) Direction		s above the probe? Yes No No I
- X	= 7V-11:= X		9
Parameters	Monitoring Objective	Scale	Site Type
Air flow > 200 L/min	Highest Concentration Population Exposure Source Oriented Background Transport Welfare Related Impacts	Micro Middle Neighborhood Urban Regional	
	ound)		□>15 m
	obe inlet from horizontal (wall) and om probe to supporting structure (m		of) supporting structure > 2 m? Yes \( \square \) No \( \square \)
Entire inlet opening of colle	ocated PM-10, TSP or TSP Pb Samp	olers (X) within 2 to 4 m of	cach other? Yes No No NA
Actual measured distance (2	K) including entire inlet openings of	both (all) collocated probe	e inlets (meters)
			me inlet ≥ 2 m? Yes No NA
Is probe > 20 m from the ne	arest tree drip line? Yes - *N	lo [ (answer *'d question	3)
*Distance from probe to tree *Height of tree (m)	3000	Direction from	Probe to tree
Are there any obstacles to a	ir flow? *Yes 🗌 (answer *'d questi	ions) No 🗌	1900 69
	stance from probe inlet (m)Di		
			s above the probe? Yes No
Distance of probe to nearest	traffic lane (m) Direction	from probe to nearest traf	tic lane

Revised 2013-04-26

Parameters	Monitoring Objective	Scale	Site Type
□NA		Пос	SLAMS
Air flow < 200 L/min	General/Background	Micro	□ NCORE
☐ PM2.5 ☐ PM10	Highest Concentration	Middle	SPM
PM10-2.5	Population Exposure	Neighborhood	NONREGULATORY
PM10 Lead (PB)	Source Oriented	Urban	
PM2.5 Cont. (TEOM)	Transport	Regional	
PM2.5 Cont. (BAM)	Upwind Background	31	SUPPLEMENTAL
PM2.5 Spec. (SASS) PM2.5 Spec. (URG)	Welfare Related Impacts		SPECIATION
PM2.5 Cont. Spec.	Market Control of the Market	- Acceptance	
Probe inlet height (from gro	und)	7-15 m	> 15 m
	om probe inlet to ground (meters)		
	obe inlet from horizontal (wall) and/or		
	om outer edge of probe inlet to support		Yes No
volume monitor at the site =	edge of probe inlets of any low volume 1 m or crester?	e monitor and any other low	Yes No NA
	edge of all low volume monitor inlets	and any Hi-Volume PM-10	
or TSP inlet = 2 m or greate	r?	10 10 10 10 10 10 10 10 10 10 10 10 10 1	Yes No No NA
Are collocated PM2.5 Moni	tors (Two FRMs, FRM & BAM, FRM	& *Yes□(answe	r*'d questions) No 🗌 NA 📗
TEOM, BAM & TEOM) Lo	scated at Site? located PM 2.5 samplers (X) within 2 t		
each other?	located FW 2.5 samplers (A) within 2		Give actual (meters)
	pler inlets within 1 m vertically of each		Give actual (meters)
	llocated with a SASS monitor at the sit		
	located speciation samplers inlets (X)	within 2 to 4 m of each other	? Yes 🗌 No 📙
# Are collocated speciation	sampler inlets within 1 m vertically of	each other? Ves 🗆 No 🗀	Give actual (meters)
	itor collocated with a PM2.5 monitor a	t the site	
to measure PM10-2.5?		~1 cs ∐ (answ	er *"d questions) No 🗌 NA 🗌
	located PM10 and PM2.5samplers for	PM10-2.5 (X) within 2	Yes No
to 4 m of each other?  *Are collected PM10 and 1	PM2.5 sampler inlets within 1 m vertice		Yes □ No □
	arest tree drip line? Yes \( \text{ *No } \)		140
	MANAGATA SANTA MANAGATAN MANAGAMATAN MANAGATAN		7
*Distance from probe to tree	earest tree drip line if tree acts as an ob	Direction from proh	 e to tree
"Height of tree (m)	- ()		
	ir flow? *Yes 🗌 (answer *'d questions		
*Identify obstacle Di	stance from probe inlet (m)Dir	ection from probe inlet to ob	stacle
	to obstacle at least twice the height th		
Distance of probe to nearest	traffic lane (m) Direction from	om probe to nearest traffic la	ne
RECOMMENDATIONS	£		
1) Maintain current site st	atus? Yes 🗌 *No 🗌 (answer *`d	questions)	
*2) Change monitoring of	ojective? Yes [ ] (enter new objective	e	) No []-
*3) Change scale of repres	sentativeness? Yes 🗌 (enter new so	ale	) No 🗆
*4) Relocate site? Yes			
G			
Comments:			
Date of Last Site Pictures	December 20, 2012	New Pictures Submitted? Y	es 🛭 No 🗌
Reviewer Tony Sabetti		Da	teDecember 28, 2012
W124-000-0001-000-00-00-00-00-00-00-00-00-00	*************		
Ambient Monitoring Coon	dinator Tony Sabetti		Date <u>12/28/12</u>

New Hanover 2012 Site Review.Docx

### Site Information

Region WIRO Site Name Battleship UAT			AQS Site # 37-129-0010			
Street Address- 1 Ba	ttleship Ro	ad_	110	City Wilmington		
Urban Area WILN	INGTON	Core-b	ased St	atistical Area	Wilmington, NC	
	Enter E					
			555194	м	lethod of Measuring	
In Decimal Degrees		In Decimal Degrees		Other (explain	Explanation: Google Earth	
Elevation Above/belov	Mean Se	a Level (in meters)		5.0	_ 5	
Name of nearest road to i	nlet probe	Battleship Road ADT	○ Year		0.0	
Comments: No data for	Battleship R	cad				
Distance of site to neares	t major road	(m) 650.00 Direction fi	om site to	nearest major ro	and SSW	
Name of nearest major ro	2000			45		
		70 66 421 7401 23000	rear rate	sc available 2011		
Comments:			2			
Site located near electricated	il substation	high voltage power lines	7		Yes ☐ No 🛛	
Distance of site to near	est railroad	track	(m)	Dir	ection to RR NA	
Distance of site to near	ect power r	oole w/transformer	(m)	83 Direction 5	3	
Distance between site and						
					, stacks, vents, railroad tracks,	
construction activities,					, stacks, veins, railtone nacks,	
	100110001	estations, and straining	me promi	\$55		
<u>0</u>						
ANGUED ALL ADDI	ICA DI E C	VIETTONE.				
ANSWER ALL APPI Parameters		onitoring Objective	-	Scale	Site Type	
81 - 300 - 300	151	onitoring Objective	19 000	State	Site Type	
□NA		eral/Background		істо	SLAMS	
SO <sub>2</sub> (NAAQS)	High	nest Concentration	$\square_{M}$	iddle	□NCORE	
☐ SO₂ (trace-level) ☐ NO₂ (NAAQS)		O3 Concentration	100	eighborhood		
HSNO,		lation Exposure	3,7,724,01,4013		SPM/OPN	
□ O <sub>3</sub>	Sour	ce Oriented	0.11 23/22/	rban		
□ NH <sub>3</sub>	I ran	sport	Re	gional	NONREGULATORY	
Hydrocarbon	- SV-10	ind Background fare Related Impacts				
		are related impacts				
HSCO (Not Micro	)	-				
CO (trace-level)			1			
Probe inlet height (from		50 (3 (5)			d height from ground (meters) 3.8	
					ting structure > 1 m? Yes 🔯 No 🗌	
		edge of probe to support		330-3-2		
		from other monitoring pr			Yes 🗌 No 🛭 NA 🗍	
Is probe > 20 m from the	nearest tree	drip line? Yes 🛛 *	No [ (a	nswer * d questio	ns)	
*Is probe > 10 m from th	e nearest tre	e drip line if tree acts as	an obstruc	tion? Yes	*No 🗌	
*Distance from probe to	tree (m)			Direction from	n probe to tree	
*Height of tree (m)					no ne esta mana esta esta esta esta esta esta esta est	
Are there any obstacles t	o air flow?	Yes (answer *'d que	stions) No			
A CONTRACT OF CASE AND A SECURIOR SECUR		om probe inlet (m)				
					les above the probe? Yes No	
Distance of probe to near	est traffic la	ine (m) 15 Direction b	om probe	to nearest traffic	lane <u>5</u>	

Parameters	Monitoring Objective	Scale	Site Type
⊠NA □CO (Micro Only)	Highest Concentration Population Exposure Source Oriented Transport Welfare Related Impacts		SLAMS SPM SPM/OPN NONREGULATORY
Probe inlet height (from gr Actual measured distance	round) 2.5 - 3.5 m? from probe inlet to ground (meters) _	_	Yes 🗌 No 🗍
	probe inlet from horizontal (wall) and/ from outer edge of probe to supporting		ting structure > 1 m? Yes No
Distance of probe inlet to	nearest intersection > 10 m? nearest traffic lane 2 to 10 m? nearest tree drip line? Yes *No	n ∏ (answer *'d ouestic	Yes No Yes No No
*Is probe > 10 m from the *Distance from probe to tr *Height of tree (m)	nearest tree drip line if tree acts as an ec (m)air flow? *Yes (answer *'d questic	obstruction? Yes  Direction from	*No 🗆
*Is distance from inlet pro	Distance from probe inlet (m)	that the obstacle protruc	des above the probe? Yes 🔲 No 🗌
Parameters	Monitoring Objective	Scale	Site Type
⊠NA □NOy(trace-level)	General/Background Highest Concentration Max O3 Concentration Population Exposure Source Oriented Transport Upwind Background Welfare Related Impacts	Micro Middle Neighborhood Urban Regional	NCORE
Probe inlet height (from gr Actual measured distance	round) 10-15 m? from probe inlet to ground (meters) _		Yes No
	probe inlet from horizontal and/or vert from outer edge of probe inlet to supp		
Distance of outer edge of a	probe inlet from other monitoring prob	e inlets > 1 m?	Yes □ No □ NA □
*Is probe > 10 m from the	nearest tree drip line? Yes *No nearest tree drip line if tree acts as an ee (m)	obstruction? Yes	1850\$CV
Are there any obstacles to *Identify obstacle I *Is distance from inlet pro	air flow? "Yes (answer "'d questic Distance from probe inlet (m)	Direction from probe into	des above the probe? Yes 🔲 No 🔲

Parameters	Monitoring Objective	Scale	Site Type
NA  NO₂ (Near Road only)  CO (Near Road only)	Highest Concentration Population Exposure Source Oriented Transport Welfare Related Impacts	Micro	SLAMS  SPM NONREGULATORY
Distance of outer edge of pro Actual measured distance fro	nd) 2-7 m? Yes No No he inlet from horizontal (wall) and/ m outer edge of probe inlet to supp be inlet from other monitoring prob	or vertical (roof) support orting structure (meters)	Height from ground (meters)   ing structure > 1 m? Yes   No   No     Yes   No   NA
*Is probe > 10 m from the ne *Distance from probe to tree *Height of tree (m)	rest tree drip line? Yes . *No arest tree drip line if tree acts as an (m)	obstruction? Yes Direction from	*No 🗆
*Identify obstacle Dist *Is distance from inlet probe	flow? *Yes [ (answer *'d questic rance from probe inlet (m)Dir to obstacle at least twice the height raffic lane (m) Direction	rection from probe inlet t that the obstacle protrud	es above the probe? Yes 🗌 No 🗍
Parameters	Monitoring Objective	Scale	Site Type
Air flow > 200 L/min   PM10   TSP   TSP Pb	Highest Concentration Population Exposure Source Oriented Background Transport Welfare Related Impacts	MicroMiddleNeighborhoodUrbanRegional	NCORE
	nd)		>15 m
	be inlet from horizontal (wall) and/ m probe to supporting structure (ma	eters)	oof) supporting structure > 2 m? Yes  \text{No }
Actual measured distance (X)	including entire inlet openings of l	ers (X) within 2 to 4 m o both (all) collocated prob	f cach other? Yes No No NA
Is probe > 20 m from the near	rest tree drip line? Yes 🗌 *No	answer *'d question	ns)
*Distance from probe to tree *Height of tree (m)	arest tree drip line if tree acts as an (m) flow? *Yes (answer *'d questic	Direction from	*No
*Identify obstacle Dist *Is distance from inlet probe	ance from probe inlet (m)Din	ection from probe inlet to that the obstacle protrud	es above the probe? Yes 🔲 No 🔲

Revised 2013-04-26

Parameters	Monitoring Objective	Scale	Site Type	
⊠NA	General/Background	Micro_	SLAMS	
Air flow < 200 L/min	[12]		□ NCORE	
☐ PM2.5 ☐ PM10	Highest Concentration		□SPM	
PM10-2.5	Population Exposure	Neighborhood	NONREGULATORY	
PM10 Lead (PB)	Source Oriented	Urban		
PM2.5 Cont. (TEOM)	Transport	Regional		
PM2.5 Cont. (BAM)	Upwind Background	800 50 75	SUPPLEMENTAL	
PM2.5 Spec. (SASS) PM2.5 Spec. (URG)			SPECIATION	
PM2.5 Cont. Spec.	Welfare Related Impacts	2		
	und)	7-15 m	> 15 m	
	om probe inlet to ground (meters)		9 - E	
Distance of outer edge of pro-	obe inlet from horizontal (wall) and/or	r vertical (platform or roof) sup	porting structure > 2 m?	
	om outer edge of probe inlet to suppor		Yes 🗌 No 🗌	
	edge of probe inlets of any low volum	e monitor and any other low	Yes □ No □ NA □	
volume monitor at the site =	1 m or greater? edge of all low volume monitor inlets	and any Hi Volume DM 10		
or TSP inlet = 2 m or greater		and any III-volume PM-10	Yes No NA	
	tors (Two FRMs, FRM & BAM, FRM	1& ¬	MARKET STATE OF THE STATE OF TH	
TEOM, BAM & TEOM) Lo	cated at Site?	*Yes [ (answer	Fd questions) No ☐ NA ☐	
	located PM 2.5 samplers (X) within 2			
each other?	pler inlets within 1 m vertically of eac		Give actual (meters) Give actual (meters)	
	llocated with a SASS monitor at the si			
*Entire inlet opening of col	located speciation samplers inlets (X)	within 2 to 4 m of each other?	Yes No	
Give actual (meters)				
	sampler inlets within 1 m vertically of		Give actual (meters)	
	itor collocated with a PM2.5 monitor a	at the site Yes (answer	**d questions) No 🗌 NA 🔲	
to measure PM10-2.5?	located PM10 and PM2 Scamplers for	DM10 2 5 CV2 mithin 2		
to 4 m of each other?	*Entire inlet opening of collocated PM10 and PM2.5samplers for PM10-2.5 (X) within 2  Yes  No  No			
	*Are collocated PM10 and PM2.5 sampler inlets within 1 m vertically of each other? Yes No			
Is probe > 20 m from the ne	arest tree drip line? Yes 🗌 *No 🛭	(answer **d questions)		
*Is probe > 10 m from the n	earest tree drip line if tree acts as an ol	bstruction? Yes ☐ *No ☐		
	: (m)			
*Height of tree (m)	*Height of tree (m)			
	ir flow? *Yes 🔲 (answer *'d question		91	
	stance from probe inlet (m)Dir			
	to obstacle at least twice the height the traffic lane (m) Direction fr			
	dathe face (iii) Breedon ii	oni probe to nearest trathe fane	10 <u></u>	
RECOMMENDATIONS:				
<ol> <li>Maintain current site str</li> </ol>	atus? Yes 🛛 *No 🗌 (answer *`d	questions)		
*2) Change monitoring ob	jective? Yes 🗌 (enter new objective	/e	_) No ⊠-	
*3) Change scale of repres	sentativeness? Yes 🗌 (enter new se	cale	) No 🛛	
*4) Relocate site? Yes [	□ No⊠			
Comments:				
Date of Last Site Pictures	12/27/12	New Pictures Submitted? Y	es No	
Reviewer Tony Sabetti	1302957885345 <del>40</del>	The desired and the control of the c	December 11, 2012	
W. 274 - 1222-1223, 1412-1412-1412-1412-1412-1412-1412-1412	dinator Tony Schatti	10000000		
Ambient Monitoring Cook	amator Tony Sabetti		December 11, 2012	

Battleship 2012 Site Review.Docx

### Site Information

Region WIRO Site Name Kenansville			AQS Site # 37-061-0002			
Street Address 328 Limestone Road				City Kenansville		
Urban Area Not in an Urban Area Core-based Statistical Area None						
	Enter Exact					
Longitude 77.960744 Latitude 34.95		titude 34.9548	800	Method of Measuring		easuring
In Decimal Degrees	In I	Decimal Degrees	0.000	Other (explain)	Explanati	on: Google Earth
Elevation Above/below	Mean Sea Le	vel (in meters)		9. 9.99	40	
Name of nearest road to inlet probe Limestone Road ADT 3400 Year latest available 2010  Comments:  Distance of site to nearest major road (m) 750.00 Direction from site to nearest major road SE  Name of nearest major road Hwv 24/Hwv 903 ADT 7800 Year latest available 2010  Comments:  Site located near electrical substation/high voltage power lines?  Yes No					v. El v. M	
Site located near electrical	substation/mgr	i voltage power lines	1			Yes 🗌 No 🛛
Distance of site to nearest railroad track  Distance of site to nearest power pole w/transformer  (m)Direction to RR  Direction N			en en en en en en en en	**************************************		
Distance between site and						⊠NA
Explain any sources of potential bias; include cultivated fields, loose bulk storage, stacks, vents, railroad tracks, construction activities, fast food restaurants, and swimming pools.  ANSWER ALL APPLICABLE QUESTIONS:						
Parameters		oring Objective		Scale		Site Type
NA						
Probe inlet height (from ground) 2-15 m? Yes No Give actual measured height from ground (meters)  Distance of outer edge of probe inlet from horizontal (wall) and/or vertical (roof) supporting structure > 1 m? Yes No Actual measured distance from outer edge of probe to supporting structure (meters)  Distance of outer edge of probe inlet from other monitoring probe inlets > 1 m? Yes No No NA Service of No NA Service of No NA NA Service of No NA Service of No NA NA Service of No NA						
Are there any obstacles to air flow? *Yes \( \) (answer *'d questions) No \( \)  *Identify obstacle \( \) Distance from probe inlet (m) \( \) Direction from probe inlet to obstacle \( \)  *Is distance from inlet probe to obstacle at least twice the height that the obstacle protrudes above the probe? Yes \( \) No \( \)  Distance of probe to nearest traffic lane (m) \( \) Direction from probe to nearest traffic lane \( \)						

Parameters	Monitoring Objective	Scale	Site Type
⊠NA □CO (Micro Only)	Highest Concentration Population Exposure Source Oriented Transport Welfare Related Impacts	Micro	SLAMS SPM SPM/OPN NONREGULATORY
Probe inlet height (from gr Actual measured distance	round) 2.5 - 3.5 m? from probe inlet to ground (meters) _	_	Yes No No
	probe inlet from horizontal (wall) and/ from outer edge of probe to supporting		ting structure > 1 m? Yes No
Distance of probe inlet to	nearest intersection > 10 m? nearest traffic lane 2 to 10 m? nearest tree drip line? Yes *No	(answer *'d questic	Yes
*Is probe > 10 m from the *Distance from probe to tr *Height of tree (m)	nearest tree drip line if tree acts as an ee (m)	obstruction? Yes  Direction from	*No 🗆
*Identify obstacle I *Is distance from inlet pro	air flow? *Yes [ (answer *'d questic Distance from probe inlet (m)E be to obstacle at least twice the height st traffic lane (m)Direction from	Direction from probe inle that the obstacle protruc	des above the probe? Yes 🔲 No 🗌
Parameters	Monitoring Objective	Scale	Site Type
⊠NA □NOy(trace-level)	General/Background Highest Concentration Max O3 Concentration Population Exposure Source Oriented Transport Upwind Background Welfare Related Impacts	Micro Middle Neighborhood Urban Regional	NCORE
Probe inlet height (from gr Actual measured distance	round) 10-15 m? from probe inlet to ground (meters) _		Yes No
	probe inlet from horizontal and/or vert from outer edge of probe inlet to supp		
Distance of outer edge of p	probe inlet from other monitoring prob	e inlets > 1 m?	Yes□ No□NA□
*Is probe > 10 m from the	nearest tree drip line? Yes *No nearest tree drip line if tree acts as an ee (m)	obstruction? Yes	185/850
Are there any obstacles to *Identify obstacle I *Is distance from inlet pro	air flow? *Yes (answer *'d questic Distance from probe inlet (m)	Direction from probe inle that the obstacle protruc	des above the probe? Yes 🔲 No 🗀

Parameters	Monitoring Objective	Scale	Site Type
NA  NO₂ (Near Road only)  CO (Near Road only)	Highest Concentration Population Exposure Source Oriented Transport Welfare Related Impacts	Micro	SLAMS  SPM NONREGULATORY
Distance of outer edge of pro Actual measured distance fro	nd) 2-7 m? Yes No No he inlet from horizontal (wall) and/ m outer edge of probe inlet to supp be inlet from other monitoring prob	or vertical (roof) support orting structure (meters)	height from ground (meters)   ing structure > 1 m? Yes   No     Yes   No   NA
*Is probe > 10 m from the ne *Distance from probe to tree *Height of tree (m)	rest tree drip line? Yes "No arest tree drip line if tree acts as an (m)	obstruction? Yes Direction from	*No 🗆
*Identify obstacle Dist *Is distance from inlet probe	flow? *Yes (answer *'d question tance from probe inlet (m)Direction to obstacle at least twice the height raffic lane (m) Direction	rection from probe inlet t that the obstacle protrud	es above the probe? Yes 🗌 No 🗍
Parameters	Monitoring Objective	Scale	Site Type
Air flow > 200 L/min   PM10   TSP   TSP Pb	Highest Concentration Population Exposure Source Oriented Background Transport Welfare Related Impacts	MicroMiddleNeighborhoodUrbanRegional	NCORE
	nd) $\square \le 2$ m $\square$ 2-7m $\square$ m probe inlet to ground (meters) $\square$		>15 m
Distance of outer edge of pro Actual measured distance fro	be inlet from horizontal (wall) and/ m probe to supporting structure (m	eters)	Yes No
Actual measured distance (X	) including entire inlet openings of	ers (X) within 2 to 4 m o both (all) collocated prob	f cach other? Yes ☐ No ☐ NA ☐  e inlets (meters)  me inlet ≥ 2 m? Yes ☐ No ☐ NA ☐
Is probe > 20 m from the nea	rest tree drip line? Yes 🗌 *No	answer *'d question	ns)
*Distance from probe to tree *Height of tree (m)	arest tree drip line if tree acts as an (m)	Direction from	*No
*Identify obstacle Dist *Is distance from inlet probe	tance from probe inlet (m)Din	ection from probe inlet to that the obstacle protrud	es above the probe? Yes 🔲 No 🔲

Revised 2013-04-26

Parameters	Monitoring Objective	Scale	Site Type	
□NA	MG-man-1/Bardamanned	□ VG	SLAMS PM2.5	
Air flow < 200 L/min	General/Background	Micro	FRM	
□ PM2.5 □ PM10	Highest Concentration	Middle	□ NCORE	
⊠ PM10-2.5	Population Exposure	Neighborhood	□SPM	
PM10 Lead (PB)	Source Oriented	Urban	NONREGULATORY	
PM2.5 Cont. (TEOM)	Transport	⊠Regional		
PM2.5 Cont. (BAM)	Upwind Background		2.5 BAM	
PM2.5 Spec. (SASS)			SUPPLEMENTAL	
PM2.5 Spec. (URG) PM2.5 Cont. Spec.	■ Welfare Related Impacts	iti	SPECIATION	
Probe inlet height (from gro	und) \[ < 2 m \] \[ \ \ 2-7m \] om probe inlet to ground (meters) \[ \ 2.4	7-15 m	□ > 15 m	
	ohe inlet from horizontal (wall) and/o	200 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	norting etweetows > 2 m²	
	om outer edge of probe inlet to suppo		Yes ⊠ No □	
Distance (Y) between outer volume monitor at the site =	edge of probe inlets of any low volun	ne monitor and any other low	Yes ⊠ No □ NA □	
	edge of all low volume monitor inlets	s and any Hi-Volume PM-10		
or TSP inlet = 2 m or greate	r?		Yes No NA	
	tors (Two FRMs, FRM & BAM, FRN	√l & *Yes ⊠ (answer '	"d questions) No 🗌 NA 🗌	
*Entire inlet opening of col	cated at Site? located PM 2.5 samplers (X) within 2	E-September 1997	Direction CARTES CONTACT CONTA	
each other?	route The 2.5 samples (21) within 2		Give actual (meters) 3.9	
*Are collocated PM2.5 sam	pler inlets within 1 m vertically of each		Give actual (meters) 0.02	
	llocated with a SASS monitor at the s			
	* Entire inlet opening of collocated speciation samplers inlets (X) within 2 to 4 m of each other? Yes 🗌 No 🔲			
Give actual (meters)				
* Are collocated speciation sampler inlets within 1 m vertically of each other? Yes No Give actual (meters)  Is a low-volume PM10 monitor collocated with a PM2.5 monitor at the site				
to measure PM10-2.5? "Yes (answer *'d questions) No NA				
* Entire inlet opening of collocated PM10 and PM2.5samplers for PM10-2.5 (X) within 2 Yes No				
	to 4 m of each other?			
	arest tree drip line? Yes 🛛 *No		s No 🗆	
	CONTRACTOR			
*Is probe > 10 m from the nearest tree drip line if tree acts as an obstruction? Yes : *No :				
*Distance from probe to tree (m) Direction from probe to tree				
Are there any obstacles to air flow? *Yes [ (answer *'d questions) No [X]				
	*Identify obstacle Distance from probe inlet (m) Direction from probe inlet to obstacle			
*Is distance from inlet probe to obstacle at least twice the height that the obstacle protrudes above the probe? Yes 🛛 No 🗌				
Distance of probe to nearest	traffic lane (m) 375 Direction from	m probe to nearest traffic lane <u>I</u>	<u>ene</u>	
RECOMMENDATIONS:	a grand end			
1) Maintain current site status? Yes ⊠ *No □ (answer *'d questions)				
*2) Change monitoring objective? Yes [ (enter new objective) No []-				
*3) Change scale of representativeness? Yes [ (enter new scale ) No [				
*4) Relocate site? Yes [		2000		
Comments:				
Date of Last Site Pictures	12/20/12	New Pictures Submitted? \	es 🛛 No 🗌	
Reviewer Tony Sabetti	70-	Date	December 27, 2012	
Ambient Monitoring Coordinator Tony Sabetti DateDecember 27, 2012			December 27, 2012	

Kenansville 2012 Site Review.Docx

#### **Appendix G-2. Scale of Representativeness**

Each station in the monitoring network must be described in terms of the physical dimensions of the air parcel nearest the monitoring station throughout which actual pollutant concentrations are reasonably similar. Area dimensions or scales of representativeness used in the network description are:

- a) Micro-scale defines the concentration in air volumes associated with area dimensions ranging from several meters up to about 100 meters.
- b) Middle scale defines the concentration typical of areas up to several city blocks in size with dimensions ranging from about 100 meters to 0.5 kilometers.
- c) Neighborhood scale defines concentrations within an extended area of a city that has relatively uniform land use with dimensions ranging from about 0.5 to 4.0 kilometers.
- d) Urban scale defines an overall citywide condition with dimensions on the order of 4 to 50 kilometers.
- e) Regional Scale defines air quality levels over areas having dimensions of 50 to hundreds of kilometers.

Closely associated with the area around the monitoring station where pollutant concentrations are reasonably similar are the basic monitoring exposures of the station.

#### There are six basic exposures:

- a) Sites located to determine the highest concentrations expected to occur in the area covered by the network.
- b) Sites located to determine representative concentrations in areas of high population density.
- Sites located to determine the impact on ambient pollution levels of significant sources or source categories.
- d) Sites located to determine general background concentration levels.
- e) Sites located to determine the extent of regional pollutant transport among populated areas.
- f) Sites located to measure air pollution impacts on visibility, vegetation damage, or other welfarebased impacts and in support of secondary standards.

The design intent in siting stations is to correctly match the area dimensions represented by the sample of monitored air with the area dimensions most appropriate for the monitoring objective of the station. The following relationship of the six basic objectives and the scales of representativeness are appropriate when siting monitoring stations:

**Table G2. Site Type Appropriate Siting Scales** 

	71 11 1
1. Highest concentration	Micro, middle, neighborhood (sometimes urban
	or regional for secondarily formed pollutants)
2. Population oriented	Neighborhood, urban
3. Source impact	Micro, middle, neighborhood
4. General/background & regional transport	Urban, regional
5. Welfare-related impacts	Urban, regional